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REMARKS

Applicant thanks Examiner Jimenez for considering this application, which has been carefully reviewed and amended in view of the April 19, 2002 office action. Entry of the present amendment and reconsideration of the application are earnestly requested.

In the Drawings

The drawings were objected to because they did not include the reference sign 52 as described in the specification at page 8, line 13. Accordingly, proposed drawing corrections of Figures 2 and 3 including the reference sign 52 are submitted herewith.

In the Specification

The paragraph on page 8 extending between lines 5 and 17 has been amended to correct a typographical error.

Rejections under 35 U.S.C. §112

Claims 12, 14 and 21 stand rejected as indefinite under 35 U.S.C. §112. Specifically, the examiner states that there is no antecedent basis for "the metal tube" in Claim 12, and for "the plastic tube" in Claim 14, and further states that Claim 21 is incomplete. Each of Claims 12, 14 and 21 has been amended accordingly and is now in condition for allowance under 35 U.S.C. §112.

Rejections under 35 U.S.C. §102

Claims 1, 3-5, 9, 15, 16, 19-22, 24 and 25 stand rejected under 35 U.S.C. §102(b) as being anticipated by Krupp (US 4,385,683). Claims 1-6, 8-11 and 20-25 stand rejected under 35 U.S.C. §102(b) as being anticipated by Okamura et al (US 4,517,719). Claims 1, 3-10, 13 and 20-25 stand rejected under 35 U.S.C. §102(b) as being anticipated by Blackwood et al, (US 4,440,295). With respect to Krupp, the examiner relies in part on "...a compliant (col. 3, line 53) core 18 affixed relative to the shaft 12...". With respect to Okamura, the examiner cites "...a compliant /cellular/open cell structure core 4...". With respect to Blackwood et al, the examiner cites "...a compliant core 2...".

Applicant respectfully submits that each of the '683, '719 and '295 references fails to teach a compliant core. "Compliant" means "having the ability to yield elastically when a force is applied" (see enclosure).

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By contrast, Krupp teaches a sleeve (core) which (Abstract) is "...constructed of a rigid plastic", and which (col. 3, lines 1-3) is "...preferably injection molded, extruded or otherwise constructed of acrylonitrile-butadiene-styrene copolymer, ABS, or other rigid plastic." The Krupp reference contains several other specific allusions to a rigid material making clear that the sleeve is not intended to be compliant.

The Okamura et al reference likewise does not teach a compliant retaining member (core). Among several allusions to a rigid retaining member, col. 2 (3-5) teaches a "...retaining member in the form of a retaining layer made of rigid synthetic resin or rigid synthetic resin foam", while column 5 (15-17) teaches that "...an elastic material which is readily deformed should not be adopted as the material for the retaining layer".

The '295 reference teaches (col. 4, lines 5-6) that "...the core is made of a rigid polyurethane foam" which, therefore, cannot be compliant.

Any reference anticipating Applicant's invention must teach each and every claimed element thereof. As Applicant has argued, a compliant core is not taught in any of the above references. Therefore, Applicant respectfully submits that, with respect to 35 U.S.C. §102(b), Claims 1, 3-5, 9, 15, 16, 19-22, 24 and 25 are allowable over Krupp, Claims 1-6, 8-11 and 20-25 are allowable over Okamura et al, and Claims 1, 3-10, 13 and 20-25 are allowable over Blackwood et al.

Rejections under 35 U.S.C. §103

Claims 2, 6, 7, 11, 13, 17, 18 and 23 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Krupp. Applicant notes that Claims 2, 6, 7, 11, 13, 17 and 18 depend from Claim 1, and Claim 23 depends from Claim 22. As Applicant has argued above, Claims 1 and 22 are patentable over Krupp; it follows therefore that the respective dependent Claims 2, 6, 7, 11, 13, 17 and 18, and Claim 23 are also patentable over Krupp.

Claim 6 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Krupp in view of Hiroya (JP-05-035110). Since Applicant has argued above that Claim 1 is patentable, and since Claim 6 depends from Claim 1, therefore Claim 6 is also patentable.

Claims 7, 13, 17, 18 and 23 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Krupp in view of Eiji (JP-08169573). As previously noted, Claims 7, 13, 17 and 18 depend from Claim 1, and Claim 23 depends from Claim 22. Again, Applicant has

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argued that Claims 1 and 22 are patentable, and it follows that the respective dependent Claims 2, 6, 7, 11, 13, 17 and 18, and Claim 23 are also patentable.

Claim 12 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Okumura et al (US 4,517,719) in view of Sawa et al (US 5,553,845). Applicant has argued above that Claim 1 is patentable over Okumura et al.; since Claim 12 depends ultimately from Claim 1, Applicant respectfully submits therefore that Claim 12 is allowable over Okumura et al. in view of Sawa.

Claim 14 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Blackwood et al in view of Sawa et al. As Applicant has argued above, Claim 1 is not anticipated by Blackwood. Given that Claim 14 depends ultimately from Claim 1, Applicant respectfully submits that Claim 14 is allowable over Blackwood et al in view of Sawa et al.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

Accordingly, in view of the above amendments and comments, Applicant submits that all the pending Claims 1-25 are in condition for allowance, which action is respectfully requested.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

On page 8, please replace the paragraph extending from line 5 to line 17 with:

In one embodiment, the non-compliant layer 48 is a relatively rigid metal or plastic tube. The tube can have a thickness of about .020 inches or greater. The outer surface of the tube is preferably roughened or coated with a high co-efficient of friction material. The coating should preferably be relatively thin compared with the radius of the compliant core 44. A thin coating having a thickness of about of .020 inches has been found effective. Additional layers of material can be applied to the outside of the non-compliant layer 48 to enhance the ability of the roller 40 to transport particular materials. For example, a relatively thin layer 52 of soft material such as a soft rubber [maybe] may be applied to the outside surface of an otherwise slippery non-compliant layer 48. Preferably, the soft rubber layer is sufficiently thin to preclude any deformation which introduces a significant change in the circumference or deformation of the tire 40 and hence tendency to produce scrub.

In the Claims:

Please amend the claims as follows:

1. (Once Amended) A roller for a roller assembly, the roller comprising:
 - (a) a shaft; and
 - (b) a first tire mounted relative to the shaft, the first tire including:
 - (i) a compliant core affixed relative to the shaft for rotation with the shaft; and
 - (ii) a non-compliant layer connected to the core for rotation with the core.
2. The roller assembly of Claim 1, wherein the shaft comprises a plastic shaft.
3. The roller assembly of Claim 1, wherein the shaft has a linear variance less than .03 inches per linear foot.
4. The roller assembly of Claim 1, wherein the compliant core comprises a cellular structure.

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5. The roller assembly of Claim 4, wherein the cellular structure has an open cell structure.
6. The roller assembly of Claim 4, wherein the cellular structure comprises polyurethane.
7. The roller assembly of Claim 1, wherein the non-compliant layer comprises a layer of elastomeric material.
8. The roller assembly of Claim 1, wherein the non-compliant layer has a durometer less than 60 Shore A.
9. The roller assembly of Claim 1, wherein the non-compliant layer has a durometer greater than 35 Shore A.
10. The roller assembly of Claim 1, wherein the non-compliant layer has a durometer greater than 35 Shore A and less than 60 Shore A.
11. The roller assembly of Claim 1, wherein the non-compliant layer includes a metal tube.
12. (Once Amended) The roller assembly of Claim [8]11, comprising a layer of coefficient of friction enhancing material on the metal tube.
13. The roller assembly of Claim 1, wherein the non-compliant layer comprises a plastic tube.
14. (Once Amended) The roller assembly of Claim [12]13, comprising a layer of coefficient of friction enhancing material on the plastic tube.
15. The transport mechanism of Claim 1, comprising a second tire mounted on the shaft.
16. The roller assembly of Claim 15, wherein the second tire comprises:
 - (a) a compliant core; and
 - (b) a non-compliant layer on the core.

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17. The roller assembly of Claim 16, wherein the non-compliant layer comprises a layer of elastomeric material.

18. The roller assembly of Claim 16, wherein the non-compliant layer comprises a layer of synthetic rubber.

19. The roller assembly of Claim 16, comprising a coefficient of friction enhancing surface on the non-compliant layer of one of the first tire and the second tire.

20. (Once Amended) A tire for a roller for transporting a sheet material, the roller including a shaft, and having an unloaded state and a loaded state, the tire comprising:

- (a) a compliant core connected relative to the shaft for rotation with the shaft; and
- (b) a non-compliant layer connected to and surrounding the compliant core and[,] the shaft, the compliant core and the non-complaint layer being concentric in the unloaded configuration, and the shaft being offset from the concentric state in the loaded state, the non-compliant layer selected to preclude a deformation of the non compliant layer in the loaded state sufficient to induce skewing or scuffing of the sheet material upon contact with the sheet material.

21. (Once Amended) The tire of Claim 20, wherein the non-compliant layer has a constant cross section [in] between the unloaded state and the loaded state [than the compliant core].

22. A roller having an unloaded concentric configuration and a loaded non-concentric configuration, the roller comprising:

- (a) a shaft;
- (b) a non-compliant layer; and
- (c) a compliant core intermediate the non-compliant layer and the shaft, the compliant core selected to produce a varying annular segment size of the compliant core and the non compliant layer selected to produce a constant annular segment size during rotation of the shaft in the loaded non-concentric configuration.

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23. The roller of Claim 22, wherein the non-compliant layer is one of a metal tube or a plastic tube.

24. The roller of Claim 22, wherein the compliant layer has a cellular structure.

25. A tire for a roller, comprising:

(a) a hub; and

(b) a first tire mounted on the hub for rotation with the hub, the first tire including:

(i) a compliant core affixed to the hub for rotation with the hub; and

(ii) a non compliant layer connected to the core for rotation with the core for rotation with the core.

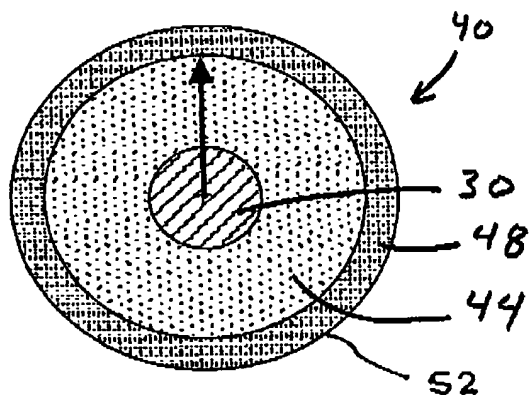


FIGURE 2

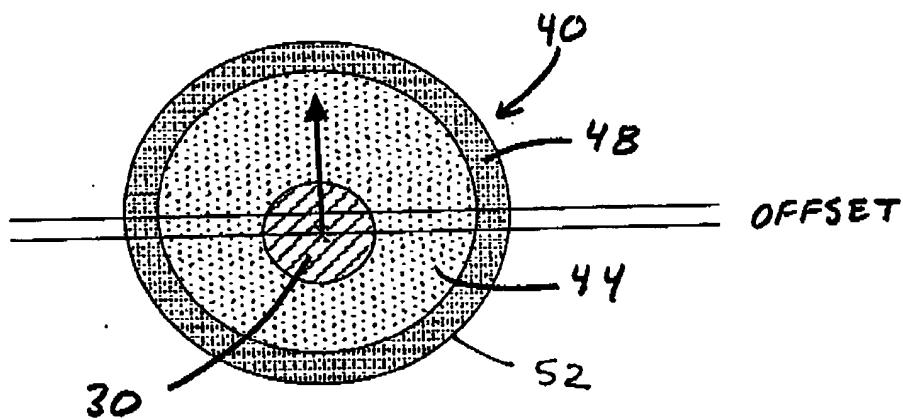


FIGURE 3

: overall aspect or character (by changing the ~ of the legislative branch ~ Trevor Aronbrister) : complex-ion-al \-shənəl, -shə-nəl
 adj. complex-ioned \-shənd/ adj.
 complex-ity \kəm-ˈplɛk-sə-ti, kɪm-/, n. pl. -ties (1685) 1: the quality or state of being complex 2: something complex
 complex number n (1860): a number of the form $a + b\sqrt{-1}$ where a and b are real numbers
 complex plane n (ca. 1909): a plane whose points are identified by means of complex numbers; esp: ARGAND DIAGRAM
 compliance \kəm-pli-ˈəns/ n (1647) 1: a: the act or process of complying to a desire, demand, or proposal or to coercion b: conformity in fulfilling official requirements 2: a disposition to yield to others 3: the ability of an object to yield elastically when a force is applied: FLEXIBILITY
 compliance \-ən(t)-s/ n (1643): COMPLIANCE
 compliant \-ənt/ adj (1642): ready or disposed to comply: SUBMISSIVE
 compliantly adv
 complicate \kəm-ˈplɪ-kə-t/ n. pl. -cles [ˈkomplɪkət] (ca. 1828) 1: the quality or state of being complicated 2: something that is com-

com-pil-ate /kəm-plā-kāt v -cat-ed; -cating (1621) 1: to compile esp. in an involved or intricate manner 2: to make complex or difficult 3: involve esp.: to cause to be more complex or severe (as virus disease complicated by bacterial infection)

com-plic-at-e /vplī-kāt adj [L. *complicatus*, pp. of *complicare* to fold together] fr. *com-* + *plicare* to fold — more at PLY (1638) 1: COMPLICATED 2: COMPLICATED

com-plicat-ed /kəm-plā-kā-təd adj (1656) 1: consisting of parts intricately combined 2: difficult to analyze, understand, or explain intr. esp. COMPLEX — *com-plicat-ed-ly* adv — *com-plicat-ed-ness* n

com-plica-tion /kəm-plā-kā-shən n (1590) 1 a: COMPLICITY, INTRICACY; esp.: a situation or detail of character complicating the main thread of a plotline feature or element d: a difficult factor or issue often appearing unexpectedly and changing existing plans, methods, or situations 2 a: a secondary disease, or condition developing in the course of a primary disease or condition

com-plex /kām-plēks, kām-n (M.E. fr. MP, fr. LL *complexus*, *complex*, fr. L closely connected, fr. *complicari*) (1535) *archaic*: ASSOCIATE

com-pli-cat /kəm-plī-kət adj (1973) having complexity

com-pli-ca-tions /vplī-kā-shənz n (1660) COMPLICATION

com-pli-ci-ary /kəm-plī-si-kārī n pl -ci-es (ca. 1656) 1: association or participation in or as if in a wrongful act 2: an instance of complicity

com-pli-er /vplī-or-ē n (1660) one that complies

com-pli-ment /kəm-plī-mənt n (P, fr. It *complimento*, fr. Sp *complimiento*, fr. *cumplir* to be courteous — more at COMPLY (1654) 1 a: *pliminto*, fr. *cumpli* to be courteous — more at COMPLY (1654) 1 a: an expression of esteem, respect, affection, or admiration; esp.: an admiring remark b: formal and respectful recognition HOWA 2 pl best wishes: REGARDS (except my love) (— of the season)

com-pli-ment /v-mənt v (1735) 1: to pay a compliment to 2: to present with a token of esteem

com-plimen-tar-y /kəm-plī-men-t(ə)-rē adj (1716) 1 a: expressing or containing a compliment b: FAVORABLE (the novel received ~ review) 2: given free as a courtesy or favor (~ tickets) — *com-plimen-tar-i-ly* /men-t(ə)-rē-lē adv

com-plim-en-tar-y close n (1919): the words (as sincerely yours) that conventionally come immediately before the signature of a letter and express the sender's regard for the receiver — called also *complimentary closing*

com-pline /kām-plān, -plān v often esp. [ME *compline*, *comply*, fr. OF *comple*, modif. of LL *completus*, fr. L fern. of *completus* complete] (133c): the seven last of the canonical hours

com-plot /kām-plōt n [MF *conplot* crowd, plot] (1577) *archaic*: PLOT CONSPIRACY

com-plot /kām-plōt, kām-v (1791) *archaic*: PLOT

com-ply /kām-plī v *com-plied*; *com-ply-ing* (It *compiire*, fr. Sp *cumplir* to complete, perform what is due to be courteous, modif. of L *cumpliri* to complete, perform what is due to be ceremoniously courteous *comply* to complete) (1602) 1 also: to be ceremoniously courteous 2: to conform or adapt one's actions to another's wishes, to a rule, or to a necessity

com-po /kām-wpō n pl *compos* [short for composition] (1823) n any of various composition materials

com-po-nent /kām-wpō-nēt, kām-, kām-a (L *component*, *componentis*, pp. of *componere* to put together — more at COMPOUND (1645)) 1: constituent part: INGREDIENT 2 a: any one of the vector terms added to form a vector sum or resultant b: coordinate of a vector; also: either member of an ordered pair of numbers SYN see ELEMENT — *com-po-nen-tial* /kām-wpō-nen(t)-shəl adj

com-po-nent ad (1664): serving or helping to constitute: CONSTITUENT

com-port /kām-pōrt, -pōrt v [MF *comporter* to bear, conduct, fr. L *comportare* to bring together, fr. *com-* + *portare* to carry — more at PORT (1589)] 1: to fitting: ACCORD (actions that ~ with policy) 2: to BEHAVE; esp.: to behave in a manner conformable to what is right, proper, or expected (~ed himself well in the crisis) SYN see BEHAVE — *com-port-ment* /mən-t n

com-port /kām-pōrt, -pōrt v (1711): COMPUTE 2

com-po-se /kām-pōz, -poz v (indiv. *composui*) — more at COMPOUND vi POSER, fr. L *componere* (pert. indic. *composui*) 1: to formulate and write (a piece of music) (2): to compose music 3: to deal with or act on so as to reduce to a minimum 4: to free from agitation 5 CALM arrange in proper or orderly form 6: to practice composition

SETTLE (*composed* himself) (1607): free from agitation 1 CALM; esp.: SELF-POSSESSED SYN see COOL — *com-po-se-ably* /v-pō-zād-lē adv — *com-po-si-tion* /v-pō-zī-shən n

com-po-sit /kām-pō-zīt n (1597): one that composes; esp.: a person who writes music

composing room n (1737) s the department in a printing office where typesetting and related operations are performed
composing stick n (1679) s a tray with an adjustable slide that a compositor holds in one hand and sets type into with the other
composita (Ukrainian) *ukr.-p8-zst. kom²*, cp. *Bril' Kim-po-zis' adl' [L. compositus, pp. of compositus] (1563) 1: made up of distinct parts; as a cap: relating to or being a modification of the Corinthian order combining angular and Ionic volutes with the acanthus leaves of the Corinthian 2: of or relating to a very large family (Compositae) of dicotyledonous herbs, shrubs, and trees often considered to be the most highly evolved plants and characterized by numerous single flowers, the florets arranged in dense heads that resemble a ball 3: containing the typical or essential characteristic - integer 4: containing the typical or essential characteristic - integer 5: containing a group (the - man called the Poet and the Poetess) 6: of a statistical hypothesis: specifying a range of values for one or more statistical parameters - compare binomial, lognormal, normal, etc.*



composing site

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